| <b>Work Order</b><br>November-02-11 &          |                         |  |                 | *750                 | 147*                     |            |              |               |                |                  | Page 1         |   |
|--|-------------------------|--|-----------------|----------------------|--------------------------|------------|--------------|---------------|----------------|------------------|----------------|---|
| Revision ID:                                   | 3190-1<br>hafing Shield |  |                 | Accept               | *N900                    | <b>040</b> | 100          | )*            | Setup Sta      | 1.7              | S1*<br>S2*     |   |
|  | 2/11/2011               | Start Qty: 10.00<br>Req'd Qty: 10.00             | *10*<br>*10*    |                      | Cust Item I<br>Customer: | D:         |              |               | ,              |                  | <b>3</b> /     |   |
|  |                         | n: <u>M</u> L J                                  | •               |                      |                          | ate:       |              | ļ             | Run Sta<br>Sto | n IV             | R1*<br>R2*     |   |
| Sequence ID/<br>Work Center ID                 |                         | Operation Description                            |                 | Set Up/<br>Run Hours | Tool ID                  | Tool #     | Plan<br>Code | Accept<br>Qty | Reject<br>Qty  | Reject<br>Number | Insp.<br>Stamp | - |
| Draw Nbr                                       | Revi                    | ision Nbr  |                 |                      |                          |            |              |               |                |                  |                |   |
| D3190  | Rev                     | A  |                 |                      |                          |            |              |               |                |                  |                |   |
| *100<br>*100*<br>Waterjet<br>FLOW CNC Waterjet |                         | <b>Memo</b><br>CUT AS PE<br>DWG REV:<br>PROG REV | <del>``</del>   | 0.00                 |                          |            |              | <b>IB</b> 11  | -1(-8          | \J2              | )              |   |
| *105<br>*105*<br>QC<br>Quality Control         |                         | QC2- Inspect parts off m                         | achine FAI/FAIB | 0.00                 |                          |            |              | <u>(B</u> ((  | -1(-8          |                  |                |   |
| 106<br><b>*106*</b><br>QC                      |                         | QC8- Inspect parts - seco                        | ond check       | 0.00<br>July 2 00.00 | los                      |            | ( (          | 4-23          |                |                  |                |   |

Quality Control

| W/O:    |                       |            | W                           | ORK ORDER CHANG              | GES    |               |              |            |                               | ,                        |           |              |
|---------|-----------------------|------------|-----------------------------|------------------------------|--------|---------------|--------------|------------|-------------------------------|--------------------------|-----------|--------------|
| DATE    | STEP                  | PRO        | CEDURE CHA                  | NGE                          | E      | Ву            | Date         | Qty        | Approval Chief Eng / Prod Mgr | Approval<br>QC Inspector |           |              |
|         |                       |            | 4                           |                              |        |               |              |            | 1 Tod Wigi                    |                          |           |              |
|         |                       |            |                             | •                            |        |               |              |            |                               |                          |           |              |
|         |                       |            |                             |                              |        |               |              |            |                               |                          |           |              |
|         |                       |            |                             |                              |        |               |              |            |                               |                          |           |              |
|         | :                     |            |                             |                              |        |               |              |            |                               |                          |           |              |
|         |                       |            |                             |                              |        |               |              |            |                               |                          |           |              |
|         |                       |            |                             | -                            |        |               |              |            |                               |                          |           |              |
| Part No | ·                     | PAR #:     | Fault Cate                  | gory:                        | _ NCR: | Yes N         | lo <b>DQ</b> | <b>\</b> : | _ Date: _                     |                          |           |              |
|         | R                     | esolution: | Dispositio                  | n:                           | QA: N  | /C Clo        | sed:         |            | Date:                         |                          |           |              |
| NCR:    |                       | V          | VORK ORD                    | ER NON-CONFORM               | ANCE ( | NCR)          |              |            |                               |                          |           |              |
| DATE    | DATE STED Description |            | ion of NC Corrective Action |                              |        |               | Verific      | ation      | Approval                      | Approval                 |           |              |
| DATE    | STEP                  | Section A  | Initial<br>Chief Eng        | Action Description Chief Eng |        | ign &<br>Date | Section C    |            | Section C                     |                          | Chief Eng | QC Inspector |
|         |                       |            |                             |                              |        |               |              |            |                               |                          |           |              |
|         |                       |            |                             |                              |        |               |              |            |                               |                          |           |              |
|         | ,                     |            |                             |                              |        |               |              |            |                               |                          |           |              |
|         |                       |            |                             | 450                          |        |               | ļ            |            |                               |                          |           |              |
|         |                       |            |                             |                              |        |               |              |            |                               |                          |           |              |
|         |                       |            |                             |                              |        |               |              |            |                               |                          |           |              |
|         |                       |            |                             |                              |        |               |              |            |                               |                          |           |              |
|         |                       |            |                             |                              |        |               |              |            |                               |                          |           |              |
|         |                       |            |                             |                              |        |               |              |            |                               |                          |           |              |
|         |                       |            |                             |                              |        |               |              |            |                               |                          |           |              |
|         |                       |            |                             |                              |        |               |              |            |                               |                          |           |              |

Work Order ID 75947 \*75947\* Page 2 November-02-11 8:34:33 AM D3190-1 Accept Item ID: \*N900040100\* Setup Start **Revision ID:** Chafing Shield Item Name: \*10\* 02/11/2011 **Start Oty: 10.00 Start Date: Cust Item ID: Required Date:** 16/11/2011 Req'd Qty: 10.00 **Customer:** Reference: Run Process Plan: **Tooling:** Date: Date: Approvals: Stop SPC (Y/N): QC: Date: Date: Reject Reject Sequence ID/ Tool # Plan Insp. **Operation** Set Up/ Tool ID Accept **Work Center ID** Description **Run Hours** Code Qty Oty Number Stamp 0.00 107 23 **SHEAR** \*107\* Sp ululog 0.00 Small Fab Memo Roll as per Dwg D3190 Small Fab QC5- Inspect part completeness to step on W/O 0.00 110 \*110\* QC Memo

Identify as per dwg & Stock Location:\_\_\_\_\_

\*120\*

0.00

11 - 11 - 10

Packaging

Quality Control

120

Packaging

Memo X-tubes assy

0.00

| W/O:                     |      |                   | WO                   | RK ORDER CHAN  | GES         |        |                               |                          |              |
|--------------------------|------|-------------------|----------------------|--|-------------|--------|-------------------------------|--------------------------|--------------|
| W/O: DATE STEP  Part No: | PR   | OCEDURE CHAI      | NGE                  | Ву   | Date        | Qty    | Approval Chief Eng / Prod Mgr | Approval<br>QC Inspector |              |
|                          |      |                   |                      | A A STATE OF THE S |             |        |                               |                          |              |
|                          |      |                   |                      |  |             |        |                               |                          |              |
|                          |      |                   |                      |  |             |        |                               |                          |              |
|                          |      |                   |                      |  |             |        |                               |                          |              |
|                          |      |                   |                      |  |             |        |                               |                          |              |
| Part No                  | •    | PAR #:            | Fault Cate           | jory:  | NCR: Yes    | No DQ  | A:                            | Date:                    |              |
|                          | Res  | solution:         | Disposition          | ı:   | QA: N/C C   | osed:  |                               | Date:                    |              |
| NCR:                     |      | ,                 | WORK ORDE            | R NON-CONFORM  | ANCE (NCF   | ₹)     |                               |                          |              |
| DATE                     | STEP | Description of NC |                      | ·  | ction B     |        |                               | Approval                 | Approval     |
| DAIL                     | J.L. | Section A         | Initial<br>Chief Eng | Action Description Chief Eng   | Sign & Date | * Sect | ion C                         | Chief Eng                | QC Inspector |
|                          |      |                   |                      |  |             |        |                               |                          |              |
|                          |      |                   |                      |  |             |        |                               |                          |              |
|                          |      |                   |                      |  |             |        |                               |                          |              |
|                          |      |                   |                      |  |             |        |                               |                          |              |
|                          |      |                   |                      |  |             |        |                               |                          |              |
|                          |      |                   |                      |  |             |        |                               |                          |              |
|                          |      |                   |                      |  |             |        |                               | ···*\                    |              |
|                          |      |                   |                      |  |             |        |                               |                          |              |
|                          |      |                   |                      |  |             |        |                               |                          |              |

|  | Work Order ID 75947  Tovember-02-11 8:34:33 AM |  |                      |                              | *75947*             |        |              |               |             |               |                  | Page 3         |  |
|--|--|--|----------------------|------------------------------|---------------------|--------|--------------|---------------|-------------|---------------|------------------|----------------|--|
| Item ID:<br>Revision ID:<br>Item Name: | D3190-1 Chafing Shield                         | d  |                      | Accept                       | *N900               | 040    | 100          | )*            | Setup       | Start<br>Stop |                  | S1*<br>S2*     |  |
|  | 02/11/2011                                     | Start Qty: 10.00<br>Req'd Qty: 10.00         |                      |                              | Cust Item Customer: |        |              |               |             |               |                  | . 1/           |  |
| Approvals:                             | Process Pla                                    | in:  | Date:                | Tooling: SPC (Y/N):          |                     | ate:   |              |               | Run         | Start<br>Stop |                  | R1*<br>R2*     |  |
| Sequence ID/<br>Work Center II         | D  | Operation Description QC21- Final Inspection | - Work Order Release | Set Up/<br>Run Hours<br>0.00 | Tool ID             | Tool # | Plan<br>Code | Accept<br>Qty | Rej<br>Qty  |               | Reject<br>Number | Insp.<br>Stamp |  |
| *130*                                  |  | Memo   |                      | 0.00                         |                     |        |              | 10            | <del></del> | <u> </u>      | 11/14            | 40             |  |

Quality Control

V (MI-1)

| W/O:        |      | 4 19 19 19 19 19 19 19 19 19 19 19 19 19 | V                           | VORK ORDER CHANGE            | ES             | · · · · · · · · · · · · · · · · · · · | *************************************** |                          |
|-------------|------|--|-----------------------------|------------------------------|----------------|---------------------------------------|---|--------------------------|
| DATE        | STEP | PRO                                      | OCEDURE CH                  | IANGE                        | Ву             | Date Qty                              | Approval Chief Eng / Prod Mgr           | Approval<br>QC Inspector |
|             |      |  |                             |                              |                |                                       |   |                          |
|             |      |  |                             |                              |                |                                       |   |                          |
|             |      |  |                             |                              |                |                                       |   |                          |
|             |      |  |                             |                              |                |                                       |   |                          |
|             |      |  |                             |                              |                |                                       |   |                          |
| <del></del> |      |  |                             |                              |                |                                       |   |                          |
| Part No     | :    | PAR #:                                   | Fault Ca                    | tegory:                      | NCR: Yes       | No DQA:                               | Date: _                                 |                          |
|             | Re   | esolution:                               | Disposit                    | ion:                         | QA: N/C Cld    | sed:                                  | Date: _                                 |                          |
| NCR:        |      | \  | WORK OR                     | DER NON-CONFORMA             | NCE (NCR       | )                                     |   |                          |
|             |      | Description of NC                        |                             | Corrective Action Section    |                | Verification                          | Approval                                | Approval                 |
| DATE        | STEP | Section A                                | <b>Initial</b><br>Chief Eng | Action Description Chief Eng | Sign &<br>Date | Section C                             | Chief Eng                               | QC Inspector             |
|             |      |  |                             |                              |                |                                       |   |                          |
|             |      |  |                             |                              |                |                                       |   |                          |
|             |      |  |                             |                              |                |                                       |   |                          |
|             |      | - V1                                     |                             |                              |                |                                       |   |                          |
|             |      |  |                             |                              |                |                                       |   |                          |
|             |      |  |                             |                              |                |                                       |   |                          |
|             |      |  |                             |                              |                |                                       |   |                          |
|             |      |  |                             |                              |                |                                       |   |                          |
|             |      |  |                             |                              |                |                                       |   |                          |
|             |      |  |                             |                              |                |                                       |   |                          |

#### **Picklist Print**

November-02-11 8:34:38 AM

Work Order ID: 75947

\*75947\*

Parent Item:

D3190-1

\*D3190-1\*

Parent Item Name: Chafing Shield

Start Date: 02/11/2011

**Required Date:** 16/11/2011

Page 1

**Start Qty: 10.00** 

Required Qty: 10.00

**Comments:** 

IPP A03.05.26New issueKJ/RF

| Component Item ID/<br>Item Name | Replacement<br>Item ID | Mfg/<br>Purch | Bin<br>Item | Primary<br>Location | Last<br>Location | Route<br>Seq ID | Unit of<br>Measure | Qty on<br>Hand | Qty per Kit | Total<br>Qty | Qty<br>Issued       | Date<br>Issued | Status |
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-------------|--------------|---------------------|----------------|--------|
| M304S25GA                       |                        | Purchased     | No          |                     |                  | 100             | sf                 | 109.5000       | 0.2153      | 2.266316     | 5,                  |                |        |
| *M304S25                        | SGA*                   |               |             |                     |                  |                 |                    |                | **          | 181          | ( <del>-</del> 1(-E |                |        |

304/316 .020" Sheet

| Location | Loc Qty | Loc Code |        |
|----------|---------|----------|--------|
| MAT20    | 109.5   |          |        |
| 117285   | 5.5     |          |        |
| 118228   | 104     | •        | BCE811 |



|         | -    |                   |                      |  |           |                                       |                 |                                     | , -,                                  |           |              |
|---------|------|-------------------|----------------------|--|-----------|---------------------------------------|-----------------|-------------------------------------|---------------------------------------|-----------|--------------|
| W/O:    | "    |                   | V                    | VORK ORDER CHAN  | IGES      | · · · · · · · · · · · · · · · · · · · |                 |                                     | · · · · · · · · · · · · · · · · · · · |           |              |
| DATE    | STEP | PRO               | OCEDURE CH           | IANGE  | Ву        | Date                                  | Qty             | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector              |           |              |
|         |      |                   |                      |  |           |                                       |                 |                                     |                                       |           |              |
|         |      |                   |                      |  |           |                                       |                 |                                     |                                       |           |              |
|         |      |                   |                      |  |           |                                       |                 |                                     |                                       |           |              |
|         |      |                   |                      |  |           |                                       |                 |                                     |                                       |           |              |
| Part No | *    | PAR #:            | Fault Ca             | tegory:  | NCR: Yes  | No <b>DQ</b>                          | A:              | Date:                               |                                       |           |              |
|         | R    | esolution:        | Disposit             | ion:   | QA: N/C   | Closed:                               |                 | Date: _                             |                                       |           |              |
| NCR:    |      | ,                 | WORK OR              | DER NON-CONFORM  | MANCE (NC | R)                                    |                 |                                     |                                       |           |              |
| DATE    | STEP | Description of NC |                      |  | ection B  | Verific                               | Verification Ap |                                     | Approval                              |           |              |
| DAIE    | SIEP | Section A         | Initial<br>Chief Eng | Action Description Chief Eng   |           | & Section C                           |                 |                                     |                                       | Chief Eng | QC Inspector |
|         |      |                   |                      |  |           |                                       |                 |                                     |                                       |           |              |
|         |      |                   |                      |  |           |                                       |                 |                                     |                                       |           |              |
|         |      |                   |                      | WERE A CONTROL OF THE |           |                                       |                 |                                     |                                       |           |              |
|         |      |                   |                      |  |           |                                       |                 |                                     |                                       |           |              |
|         |      |                   |                      |  |           |                                       |                 |                                     |                                       |           |              |
|         |      |                   |                      |  |           |                                       |                 |                                     |                                       |           |              |
|         |      |                   |                      |  |           |                                       |                 |                                     |                                       |           |              |
|         |      |                   |                      |  |           |                                       |                 |                                     |                                       |           |              |
|         | 1    |                   |                      |  | l         |                                       |                 |                                     |                                       |           |              |

| DART AEROSPACE LTD           | Work Order:  | 75947       |
|------------------------------|--------------|-------------|
| Description: Chafing Shield  | Part Number: | D3190-1     |
| Inspection Dwg: D3190 Rev: A |              | Page 1 of 1 |

#### FIRST ARTICLE INSPECTION CHECKLIST

| Drawing<br>Dimension | Tolerance | Actual Dimension | Accept | Reject | Method of<br>Inspection | Comments |
|----------------------|-----------|------------------|--------|--------|-------------------------|----------|
| 9.25                 | +/-0.030  | 9,354            | 24     |        | PROWZE                  |          |
| 3.13                 | +/-0.030  | 3.127            | 7      |        | V BUZ                   |          |
| 0.020                | +/-0.010  | 1093             | J      | -      | V                       |          |
|                      |           |                  |        |        |                         |          |
|                      |           |                  |        |        |                         |          |
|                      |           |                  |        |        |                         |          |
|                      |           |                  |        |        |                         |          |
|                      |           |                  |        |        |                         |          |
|                      |           |                  |        |        |                         |          |
|                      |           |                  |        |        |                         |          |
|                      |           |                  |        |        |                         | 31       |
|                      |           |                  |        |        |                         | •        |
|                      | 1         |                  |        |        |                         |          |
|                      |           |                  |        |        |                         |          |
|                      |           |                  |        |        |                         |          |
|                      |           |                  |        |        |                         |          |
|                      |           |                  |        |        |                         |          |
|                      |           |                  |        |        |                         |          |
|                      |           |                  |        |        |                         |          |
|                      |           |                  |        |        |                         |          |
|                      |           |                  |        |        |                         |          |
|                      |           |                  |        |        |                         |          |

| Measured by: (B | Audited by: | 8        | Preliminary Approval: | _ |
|-----------------|-------------|----------|-----------------------|---|
| Date: 11-11-8   | Date:       | 11/11/08 | Date:                 |   |

| Rev | Date     | Change    | Revised | Ьy  | Approved |
|-----|----------|-----------|---------|-----|----------|
| Α   | 10.04.07 | New Issue | 171     | KC_ | Ad       |
|     |          |           |         |     |          |

| W/O:        |      | WORK ORDER CHANGES |                             |  |                |                 |             |                               |                          |  |
|-------------|------|--------------------|-----------------------------|--|----------------|-----------------|-------------|-------------------------------|--------------------------|--|
| DATE        | STEP | PRO                | OCEDURE CHA                 | CEDURE CHANGE  |                | Date            | Qty         | Approval Chief Eng / Prod Mgr | Approval<br>QC Inspector |  |
|             |      |                    |                             |  |                |                 |             | 7 TOO MIGI                    |                          |  |
|             |      |                    |                             | •  |                | į               |             |                               |                          |  |
|             |      |                    |                             |  |                |                 |             |                               |                          |  |
|             |      |                    |                             |  |                |                 |             |                               |                          |  |
|             |      |                    |                             |  |                |                 |             |                               |                          |  |
|             |      |                    |                             |  |                |                 |             |                               |                          |  |
| Part No:    |      | PAR #:             | Fault Cate                  | gory:  | NCR: Yes       | No <b>DQA</b> : |             | _ Date: _                     |                          |  |
| Resolution: |      |                    | Dispositio                  | Disposition: QA: N/C Clo   |                |                 | osed: Date: |                               |                          |  |
| NCR:        |      | ,                  | WORK ORD                    | ER NON-CONFORMA  | NCE (NCR       | )               |             |                               |                          |  |
| DATE        | STEP | Description of NC  | Corrective Action Section B |  |                | - Verification  |             | Approval<br>Chief Eng         | Approval                 |  |
|             |      | Section A          | Initial<br>Chief Eng        | Action Description Chief Eng   | Sign &<br>Date | Section         | Section C   |                               | QC Inspector             |  |
|             |      |                    |                             |  |                |                 |             |                               |                          |  |
|             |      |                    |                             |  |                |                 |             |                               |                          |  |
|             |      |                    |                             |  |                |                 |             |                               |                          |  |
|             |      |                    |                             | The state of the s |                |                 |             |                               |                          |  |
|             |      |                    |                             |  |                |                 |             |                               |                          |  |
|             |      |                    |                             |  |                |                 |             |                               |                          |  |
|             |      |                    |                             |  |                |                 |             |                               |                          |  |
|             |      |                    |                             |  |                |                 |             |                               |                          |  |
|             |      |                    |                             |  |                |                 |             |                               |                          |  |
|             | 1    | 1                  | 1 1                         |  | 1              | 1               |             |                               | 1 1                      |  |

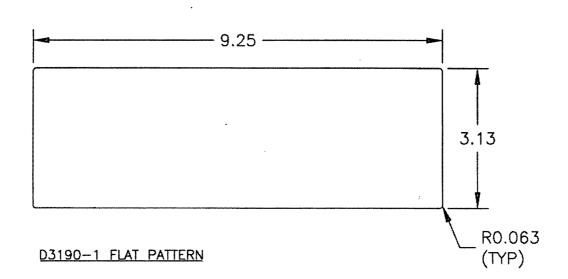
<sup>■</sup> H:\fFORMS\Quality Assurance\approved QA\NCRWO RevE





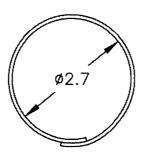
|   | DESIGN DRAWN BY |      |          | DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA |              |  |  |  |
|---|-----------------|------|----------|--|--------------|--|--|--|
| T | CHECK           | ED./ | APPROVED | DRAWING NO.                                    | REV. A       |  |  |  |
| l | 4               | 4    | 1 AF     | D3190  | SHEET 1 OF 1 |  |  |  |
| Γ | DATE            |      |          | TITLE  | SCALE        |  |  |  |
| l | 03.0            | 5.16 |          | CHAFING SHIELD                                 | 1:2          |  |  |  |
| T | Α               |      | 03.05.16 | NEW ISSUE                                      |              |  |  |  |





SHOP COPY **RETURN TO ENGINEERING UNCONTROLLED COPY** SUBJECT TO AMENDMENT WITHOUT NOTICE WORK ORDER " 75947 HLJ

11111102



D3190-1 ROLLING DETAIL NOT TO SCALE

#### D3190-1 CHAFING SHIELD

- 1) MATERIAL: AISI 304/316 SS 0.020" THICK (REF. DART SPEC M304S25GA)
- FINISH: NONE
- 3) DEBURR/BREAK ALL SHARP EDGES 0.005 TO 0.010 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 5) ALL DIMENSIONS ARE IN INCHES

Copyright © 2003 by DART AEROSPACE LTD

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

| Dart | <b>Aeros</b> | pace | Ltd |
|------|--------------|------|-----|
|      |              |      |     |

| W/O: |      | WORK ORDER CHANGES |                      |                              |        |               |              |       |   |                          |
|------|------|--------------------|----------------------|------------------------------|--------|---------------|--------------|-------|---|--------------------------|
| DATE | STEP | PRO                | PROCEDURE CHANGE     |                              |        | Ву            | Date         | Qty   | Approval Chief Eng / Prod Mgr           | Approval<br>QC Inspector |
|      |      |                    |                      |                              |        |               |              |       |   |                          |
|      |      |                    |                      |                              |        |               |              |       |   |                          |
| ·    |      |                    |                      |                              |        |               |              |       |   |                          |
|      |      |                    |                      |                              |        |               |              |       |   |                          |
|      |      |                    |                      |                              |        |               |              |       |   |                          |
|      |      | PAR #:             | Fault Cat            | egory:                       | NCR:   | Yes N         | lo DQA:      |       | Date:                                   |                          |
|      |      | esolution:         | Disposition: Q       |                              |        | /C Clos       | sed:         | Date: |   |                          |
| NCR: |      | W                  | ORK ORE              | DER NON-CONFORM              | ANCE ( | NCR)          |              |       | *************************************** |                          |
| DATE | OTED | Description of NC  |                      | Corrective Action Section B  |        |               | Verification |       | Approval                                | Approval                 |
| DATE | STEP | Section A          | Initial<br>Chief Eng | Action Description Chief Eng |        | ign &<br>Date | Section C    |       | Chief Eng                               | QC Inspector             |
|      |      |                    |                      |                              |        |               |              |       |   |                          |
|      |      |                    |                      |                              |        |               |              |       |   |                          |
|      |      | ·                  |                      |                              |        |               |              |       |   |                          |
|      |      |                    |                      |                              |        |               |              |       |   |                          |
|      |      |                    |                      |                              |        |               |              |       |   |                          |
|      |      |                    |                      |                              |        |               |              |       |   |                          |
|      |      |                    |                      |                              |        | ··            |              |       |   |                          |
|      |      |                    |                      |                              |        |               |              |       |   |                          |
|      |      |                    |                      |                              |        |               |              |       |   |                          |

<sup>■</sup> H\*1FORMS\Quality Assurance\approved QA\NCRWO RevE